

US009636729B2

(12) United States Patent

Lutterbach et al.

(54) DRAWING DIE ARRANGEMENT AND MATERIAL GUIDE TO THE ARRANGEMENT, AHEAD OF A DRAWING DIE ARRANGEMENT, AS WELL AS DRAWING METHOD(S)

(71) Applicant: SMS group GmbH, Duesseldorf (DE)

(72) Inventors: Patrick Lutterbach, Eupen (BE); Enver Yurdusever, Hueckelhoven (DE): Ali Zafari, Aachen (DE):

(DE); Ali Zafari, Aachen (DE); Thomas Cmiel, Aachen (DE)

(73) Assignee: **SMS group GmbH**, Duesseldorf (DE)

(*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35 U.S.C. 154(b) by 252 days.

• • •

(21) Appl. No.: 14/263,314

(22) Filed: **Apr. 28, 2014**

(65) Prior Publication Data

US 2014/0326031 A1 Nov. 6, 2014

Related U.S. Application Data

(60) Provisional application No. 61/818,535, filed on May 2, 2013.

(30) Foreign Application Priority Data

May 16, 2013 (DE) 10 2013 008 347

(51) **Int. Cl. B21C 3/14**

B21C 3/14 (2006.01) **B21C 1/00** (2006.01) **B21C 51/00** (2006.01) (10) Patent No.: US 9,636,729 B2

(45) **Date of Patent:**

May 2, 2017

(52) U.S. Cl.

CPC **B21C 3/14** (2013.01); **B21C 1/00** (2013.01); **B21C 51/00** (2013.01)

58) Field of Classification Search

CPC B21C 3/04; B21C 3/12; B21C 3/14; B21C 1/22; B21C 1/24; B21C 51/00; B21C

47/3433; B21D 43/006

See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

4,196,607 A	A *	4/1980	Youtsey	<i>,</i>	B21C 1/24
					72/283
8,627,703 H	B2†	1/2014	Corder		
2010/0064750 A	A1*	3/2010	Corder		B21C 1/24
					72/31.13

* cited by examiner

† cited by third party

Primary Examiner — Debra Sullivan (74) Attorney, Agent, or Firm — Collard & Roe, P.C.

(57) ABSTRACT

The invention relates to a drawing die arrangement having a drawing tool that acts on an elongated workpiece, and having a drawing tool support on which the drawing tool is mounted, counteracting the drawing tool, in which support a measurement device that measures the mass distribution of the workpiece material is disposed on the drawing tool, wherein a coupling medium circulated between the measurement device and the drawing tool is provided. Furthermore, the invention relates to a workpiece guide and to a drawing system.

13 Claims, 6 Drawing Sheets

